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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

ANNUAL INSECT CONTROL REPORT

1935

REGION 4

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November 5, 1935.

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Insect Control
R-4

MEMORANDUM FOR REGIONAL FORESTER:

In response to your request for information regarding the forest insect situation in Region 4, the attached summary has been written.

The insect situation is summarized by Forests which are placed in alphabetical order for your convenience. This is essentially a summary and many details have necessarily been omitted. Should you wish more detailed accounts we would be glad to furnish them to you.

Jgm

Encl.

Associate Forester.

Copy sent Mr. Evers den

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FOREST INSECT SUMMARY BY FORESTS - R-4

Ashley:

Control work was carried on in the spring of 1935 as follows:

Manila District:

32 ponderosa pine infested with Black Hills beetle were treated.

Lonetree District:

459 lodgepole pine infested with Black Hills beetle treated in Dry Creek.

459 lodgepole pine infested with Black Hills beetle treated in East Fork Smith Fork.

A complete 2-1/2% insect survey of all lodgepole pine and ponderosa pine areas on the Ashley was made this fall but the survey report has not as yet been received in this office. A telephone conversation with the Supervisor indicated two small areas in need of treatment both of which can easily be handled by CCC camps.

Boise:

Scattered attacks by the mountain pine beetle (Dendroctonus monticolae) are reported wherever mature lodgepole pine occurs. Over the past several years the epidemic has decreased in intensity until at present it has almost subsided.

A few scattered ponderosa pine trees are lost each year from the western pine beetle but the attacks are decidedly endemic in nature. The trees are almost always attacked singly.

Damage from the pine engraver beetles (Ips spp.) on the Boise-Payette cuttings seems greatly reduced in 1935. This is probably due to the heavy slash fire in 1934.

Cache:

This Forest has no serious insect epidemic. The Douglas fir beetle has been causing some trouble but is apparently being well controlled by

treatment of every known infested Douglas fir. The trap tree method is being used on the Cache. The results appear satisfactory but it is too early to state definitely that the method is effective. Four hundred and five (405) Douglas fir were treated with transient, ERA and CCC labor. Also 540 Douglas fir stumps were peeled and treated on timber sale operations.

An infestation of mountain pine beetle in Franklin Basin was treated, 145 limber pine and 53 lodgepole pine trees being burned.

An insect survey of all host areas for the mountain pine beetle was made on the Cache this fall but the survey report has not as yet been submitted. An increase in Fish Haven and Beaver units was found even though 47 trees in the Fish Haven unit were treated in the spring of 1935 and a thorough cleanup was thought done at the time.

Caribou:

The lodgepole pine stands on this Forest have an epidemic of the mountain pine beetle but as the Caribou is a portion of the so-called Yellowstone project, we had no survey and cannot say just how many newly attacked trees exist. Last year's check survey showed over 32,000 new attacks and from observations of spread it is safe to say this total has increased to around 40,000 in 1935. Control measures on this Forest would be entomologically sound only if the rest of the Yellowstone project received complete treatment at the same time.

Challis - Lemhi:

The great mountain pine beetle epidemic has swept over the Challis and Lemhi taking most of the mature lodgepole pine and white bark pine. No new attacks have been noticed this season and it is thought the epidemic stage has passed. No other insect damage has been noted.

Dixie:

The Black Hills beetle (Dendroctonus ponderosae) working in conjunction with the southwestern pine beetle (Dendroctonus barberi) has just started into the epidemic stage in ponderosa pine on an area between Mammoth Creek and Blue Springs Valley on the Sevier Division. The area has been examined by Mr. L. G. Baumhofer of the Denver Forest Insect Laboratory, who recommended treatment.

Control operations were started by CCC labor but soon terminated due to the removal of the camp to winter quarters. At present a spotting crew is covering the infested area with a 100% survey so as to have all necessary information available for spring treatment.

Due to the uncertainty of having CCC labor available early in the spring it is felt that this project should be accomplished with other funds than ECF. The amount of funds needed can be accurately determined as soon as the spotting crew submits a report of the findings. The Supervisor has requested funds sufficient to employ 20 men for 30 days and the project to start about April 20, 1936. We have just received an allotment of \$10,000 S. & E. from Washington and so will be able to allot some funds to the Dixie.

Some damage is being done to Douglas fir by the Douglas fir beetle (Dendroctonus pseudotsugae) but Mr. Baumhofer stated that the infestation was not severe enough to warrant treatment.

Fishlake:

The alpine fir beetle (Dryocetes confusus) is doing considerable damage and, though it may be in an epidemic stage, the widespread nature of the infestation together with the low merchantable value of the host material make treatment entomologically and economically unsound. No other known epidemic exists although several other primary insects are present in an endemic state.

Humboldt:

No insect epidemic is reported from this Forest. The recent tussock moth infestation in alpine fir has practically died out.

Idaho:

The only insect depredation reported is an infestation in the lodgepole pine by the mountain pine beetle of some 2,560 acres on Vance Creek. On the rest of the Forest the beetle has killed most of the mature and overmature lodgepole pine, limber pine and white bark pine.

La Sal:

A very few widely scattered ponderosa pine trees show beetle attack endemic in nature.

Manti:

A general widespread epidemic of the fir engraver beetle (Scolytus ventralis) exists on this Forest. The low commercial value of the host, white fir, and the nearly region-wide appearance of the beetle, make any control work unsound from both the entomological and economical standpoint.

The alpine fir beetle is present in an epidemic state in some stands. No control is thought feasible.

Minidoka:

Outside of the Yellowstone project the largest infestation of mountain pine beetle in lodgepole pine occurs on the Cassia Division of the Minidoka. All areas of host material on this division were surveyed this fall. The total of estimated newly attacked trees is 13,394 over 10,002 acres. The intensity of survey varied from 3% to 100%.

Soon after survey figures were made available a conference was held in Burley with Forest Supervisor Betenson, Mr. J. C. Evenden of the Bureau of Entomology and John T. Mathews of the office of Timber Management in attendance. After a thorough perusal of the survey data Mr. Evenden recommended treatment of all the infested trees on the Cassia Division before emergence in the spring of 1936. Mr. Evenden stated that he would recommend control only if the entire area could be treated in the one operation before emergence in the spring of 1936. The almost complete isolation of the lodgepole pine areas on the Minidoka from any other area of host material of the mountain pine beetle gives an excellent opportunity for success in control operations. Such treatment must necessarily be followed in the fall of 1936 by another comprehensive insect survey. This survey will in all probability, call for a "mopping up" operation. At least this has always been the experience in the past.

To secure complete treatment before emergence would require the expenditure of approximately \$15,000. The Forest Supervisor estimates that he can meet the expenditure with ERA and CCC man power and funds to the extent of \$8,000. An allotment of \$2,000 ECF from the Regional office contingent has already been made. We have recently received an allotment of \$10,000 S. & E. from Washington and so will be in a position to allot the other \$5,000 to the Minidoka.

Other insect damage on the Minidoka is endemic and need cause no concern.

Nevada:

Report shows no appreciable insect damage.

Payette:

The mountain pine beetle attacks on lodgepole pine have subsided so that no new attacks were observed in 1934.

The spruce budworm damage is negligible.

Powell:

This Forest reports an increase in the attacks of the Black Hills beetle (Dendroctonus ponderosae) and what appears to be its attendant beetle the southwestern pine beetle (Dendroctonus barberi) on ponderosa pine. Three hundred and fifty (350) newly attacked trees are reported on three ranger districts. These will be treated either this fall or in the spring by ERA or CCC funds.

The devastating spruce bark beetle infestation that swept the Powell during the last 15 years has disappeared except for a very few widely scattered attacks.

Salmon:

No new insect attacks are reported. The mountain pine beetle infestation in lodgepole pine has ended.

Sawtooth:

The mountain pine beetle infestation in lodgepole pine appears to be decreasing.

An infestation by the Douglas fir beetle (Dendroctonus pseudotsugae) has been noted in Horse Creek, Gladiator Creek, Senate Creek and Prairie Creek on the Ketchum district.

No control measures are suggested by the Sawtooth.

Targhee:

No insect survey was made on this Forest as it is included in the abandoned Yellowstone project. A survey in the fall of 1934 by the Bureau of Entomology indicated that the mountain pine beetle infestation in lodgepole pine and limber pine had increased to 516,000 newly attacked trees. According to a report from the Targhee the epidemic is still building up and there has been an increase since the 1934 insect survey.

The Douglas fir beetle has been reported scattered widely over the whole Forest but is not thought to be a serious menace at the present stage. No control was recommended.

Teton:

No report received as yet but it is known that the mountain pine beetle infestation was 285,000 newly attacked trees in 1934 and an increase was apparent during 1935.

Uinta:

An insect survey covered all of the lodgepole pine and limber pine areas on this Forest. A 25% reduction in new attacks was noted over the 1934 survey estimate. The intensity of survey varied from 6.1% to 14.6%. The Supervisor has requested an allotment of \$1,000 to augment ERA funds in the treatment of some 1,150 infested trees. He states he cannot use CCC labor as he has no CCC camps reasonably close to the areas in need of treatment.

The alpine fir beetle has caused a heavy loss among alpine fir stands. Due to low commercial values of the host material and general scattering nature of the infestation no treatment is recommended.

Wasatch:

In the spring of 1935 the Wasatch treated 9,270 lodgepole pine infested with the Black Hills beetle and judging from the survey reports of this fall an excellent job was done.

A serious epidemic of a flat-head borer in maple was found in the canyons adjacent to Salt Lake City. This beetle, later positively identified as Agrilus politus, is destroying the maples in these intensely used recreational areas. Probably the values per tree and per acre are higher here than in any other infested area in the entire Region. A total of 7,500 infested trees were treated in the spring and a later treatment by spraying the exposed egg clusters was tried to some advantage. Both Mr. Evenden and Mr. Baumhofer have been over the areas and are endeavoring to guide our attacks on the problem. Further treatment by CCC labor is planned for this winter and next spring.

A complete insect survey of all lodgepole pine and limber pine areas was made, the average percent of survey being 3.22%.

A decided decrease in number of new attacks was noted. A few scattered patches of infestation were found and recommended for treatment. Slightly over 1,000 trees have been treated so far this fall and the remainder will be treated in the spring. \$500 ECF was allotted the Wasatch this fall for hire of trained overhead for the CCC crews used. The survey report recommended treatment of 1,607 trees on the Kamas district and 2,925 trees on the Stockmore (or Granddaddy) district. This office understands that no additional funds will be necessary to complete the project in the spring. The work will be done with CCC labor and ECF overhead.

Weiser:

A declining infestation of mountain pine beetle in lodgepole pine is reported.

The other beetle attacks are about normal except for a possible increase in Douglas fir and fir engraver beetles. The Supervisor recommends a general survey of the Weiser by a trained entomologist.

Wyoming:

During the spring of 1935 a project on the Green River side treated 3,042 trees on 5,025 acres.

A survey of the Greys River area and the Green River side was made this last fall. The infestation in Greys River had increased from 4,336 new attacks in 1934 to 9,003 new attacks in 1935. This did not include the infestation in limber pine or white bark pine. The Green River infestation had increased from 2,308 new attacks in 1934 to 3,414 new attacks in 1935. Again the infestation in limber pine and white bark pine was not included.

Due to the fact that the Standard Timber Company is conducting a tie operation on the Green River side of the Wyoming and are planning on taking out 300,000 ties annually it was thought to be good business to institute control measures at least on the Green River side in an attempt to retard the advancing epidemic until the mature lodgepole pine could be marketed. Nature may be able to control the epidemic before it reaches the area also. The project is to be carried on without additional allotment of funds as the Supervisor believes he can finance the operation from ERA and ECF monthly allotments.

Mr. J. C. Evenden of the Bureau of Entomology stated that it was his belief that control operations on the Green River side were entomologically unsound due to the following:

1. The present infestation is building up in numbers of attacked trees in spite of yearly control operations.
2. Patches of beetle infested trees are suddenly appearing throughout most of the lodgepole pine stands and in many instances where no infestation has been previously found. The scope of territory that necessarily must be included in control operations has expanded from small isolated areas to all the lodgepole pine areas on the Green River side of the Forest.
3. There is reason to believe that many areas of infestation have been missed on the rather extensive survey and that additional areas will be discovered once treating begins that will greatly increase the scope of the project.

4. This horseshoe-shaped area of lodgepole pine on the Green River side of the Wyoming is surrounded on three sides by areas of very heavy infestation, namely:

On the west by the Caribou with approximately 40,000 infested trees.

On the north by the Targhee and Teton with approximately 516,000 and 285,000 trees, respectively.

On the east with an undetermined number of infested trees on the Washakie Forest and the Shoshone Indian Reservation. Mr. Evenden stated that in one area through which he passed on the Indian Reservation, he estimated 80,000 newly attacked trees in three sections.

5. That man has not been able to stop the steady march of infestation at any time since it started from Montana in 1918 and that the Green River lodgepole is doomed no matter what man may do unless the Yellowstone project is completely treated or nature brings about control through prolonged cold, parasites, predators, or some other factor.

Respectfully submitted.



Associate Forester.

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 (Annual Report)

November 9, 1935.

Chief, Forest Service,
 Washington, D. C.

Dear Sir:

The great wave of mountain pine beetle infestation which has for several years been progressively sweeping southward and eastward through the lodgepole pine, limber pine and white bark pine stands of this Region despite the futile efforts of artificial control is still our greatest cause of concern from insect damage. The prevailing drought conditions throughout the Region during the past few years have been unfavorable to the maintenance of the usual physiological activity within the host trees and have greatly favored the release of the endemic broods from their natural factors of control into epidemics which have begun to appear widely scattered throughout the Region. A return to normal conditions of climate will undoubtedly cause the disappearance of many of these small incipient epidemics but until such time as we feel safe in reliance on nature for control we desire to give all the aid of artificial control that lies within our power. This year has been nearer normal than any of the past several years.

The mountain pine beetle (*D. monticolae*) has so exhausted its host material through the destruction of mature and overmature lodgepole, limber, and white bark pine in the western Idaho Forests that it has either disappeared or is in the process of disappearing as an epidemic infestation. Throughout these forests the lodgepole pine stands present an extremely serious fire menace due to the excessive amount of dead material. The forests of Region 4 included in what the Bureau of Entomology terms "the Yellowstone Project" (Caribou, Targhee, Teton and parts of the Wyoming) are now being engulfed in the southeastern sweep of the epidemic. The Targhee and Teton being the farthest north have better than 90% of the infested trees of the four Forests concerned.

Copy for information Mr. Beal

Chief, F. S.

The Black Hills beetle (D. ponderosae) is gradually being brought under control in the stands of lodgepole pine, ponderosa pine, white bark pine and limber pine in the Utah Forests until at present no really serious epidemic exists.

The western pine beetle (D. brevicornis) is still in an endemic stage throughout the Idaho ponderosa pine stands. The damage done does not warrant surveys and treatment.

The fir engraver beetle (Scolytus ventralis) has been found pretty generally prevalent throughout the entire Region wherever white fir occurs. Due to its widespread occurrence and the low merchantable value of the white fir no control operations are considered either entomologically or economically sound. Due to the nature of this insect in attacking any portion of a tree new attacks are extremely difficult to detect. The Wasatch may treat infested trees in camp grounds to prolong the life of the remaining white firs.

The alpine fir beetle (Dryocoetes confusus) is common in most of the alpine fir stands in the Utah and southern Idaho Forests. No control is proposed as the values saved do not warrant the excessive costs of control. On one or two small infested areas on the Wasatch Forest near Salt Lake City, Utah some control may be tried in an effort to save trees valuable for camp ground cover.

The Douglas fir beetle (D. pseudotsugae) has shown a general increase throughout most of the Region. Entomologists have informed us that such sporadic appearance of the beetle is common but that the attacks are of short duration. The Cache Forest has been treating a few small areas and have reported satisfactory results by the use of the "trap tree method" using old, decadent, and otherwise unmerchantable trees in the "trap tree" log decks.

The aspen borer is undoubtedly increasing in Utah and Nevada but the low value of aspen makes treatment economically unsound.

The spruce budworm is reported infesting a small area on the Wyoming Forest. So far no treatment is recommended but the area will be closely watched.

A flat-head borer (Agrilus politus) infestation in maple has sprung up in the intensely used recreational areas adjacent to Salt Lake City on the Wasatch Forest. The infestation is already in most all of the maple stands and is very difficult to control as infested trees are not easily detected and the attacks are very widespread. An effort is being made to find some means of control so as to save the cover for recreational areas. The Bureau of Entomology has been consulted for advice.

Chief, F. S.

The southwestern pine beetle (D. barberi) is found working with the Black Hills beetle in ponderosa pine in southern Utah and especially on the Dixie Forest where control operations are planned for the spring of 1936.

The following summary by Forests will give the developments that have occurred since our last report to you. Since it is our understanding that any control work on the Yellowstone project is out of the question this account will ignore that group of Forests from consideration other than the effect they may exert through spread of the infestation to other areas.

Ashley N. F.:

During November and December of 1934 and January of 1935 several "hot spots" of infested lodgepole pine, limber pine and Douglas fir were treated with Nira and EOW funds and labor. A total of 1,136 lodgepole pine, 435 limber pine and 1,495 Douglas fir were treated.

During May and June of this year the task of completing a cleanup of all known "hot spots" was finished with the treatment of 896 lodgepole pine and 32 ponderosa pine infested with what is now thought to be the Black Hills beetle.

A complete 2-1/2% survey of all lodgepole pine and limber pine areas has just been completed for this Forest. The survey report has not yet been submitted to this office but a telephone conversation with the Supervisor brought the information that only two very small areas showed need of treatment. These can both be handled locally by CCC crews. Copies of this survey report will be forwarded to Washington as soon as they are received.

Uinta N. F.:

During October and November of 1934 this Forest treated the only two "hot spots" they had at the time. A total of 800 lodgepole pine and limber pine trees on the Nobleetts, Soapstone and Wolf Creek units were treated for the Black Hills beetle at a cost of \$1,796. A total of 452 lodgepole pine infested with the Black Hills beetle were treated on Tabby Mountain at a cost of \$804.

This fall a complete survey of all the areas of host material for the Black Hills beetle was made. The average percent of cruise was 2.6%. A total of 1,152 trees are recommended for a complete cleanup of all areas. An allotment of \$1,000 has been requested to provide trained overhead, oil,

Chief, F. S.

pack horses, etc. to augment ERA labor. Since you have allotted us \$10,000 S. & E. for insect control purposes, we are in a position to allot the requested funds.

Due to the prevalence of "blind" attacks as far as pitch tubes are concerned the Uinta has conducted a 100% spotting of all infested trees on the Tabby Mountain area this fall while sawdust is still visible in bark crevices and around the base of the tree. A complete cleanup of the Uinta will be made in the spring.

Wasatch N. F.:

During October and November of 1934 this Forest started treating operations which were continued this spring. During the fall, 3,989 lodgepole pine infested with the Black Hills beetle were treated in the Provo River No. 4 unit at a cost of \$7,416 and 840 lodgepole pine infested with the same beetle species were treated in the Duchesne unit No. 7 at a cost of \$1,561. Winter weather finally caused a cessation of control activities.

During the spring of 1935 control operations were continued and the two above units completed as also was the Shingle Creek-North Fork, Beaver No. 2 and Rock Creek units. A total of 9,270 trees were treated at a cost of \$14,160. During this project scouts located additional heavily infested areas that had been missed by the 1-1/4% survey of the previous fall.

In order to avoid the missing of heavily infested areas a survey covered all host material for the Black Hills beetle on this Forest this fall with a 3.22% cruise. It was found that an excellent job of control had been done during the spring operation. Some "mopping up" will have to be done in a few small areas and one or two small areas previously not treated had reached an epidemic state. A total of 4,532 trees are recommended for treatment.

Control operations on the Wasatch are now in progress. Approximately 1,200 trees have been treated. Arrangements have also been made for a continuation next spring of the control work to a complete cleanup of all areas found to be in need of mopping up during the fall survey. The Wasatch has already been allotted \$500 ECF for their fall project. We feel that we will be able to allot them \$1,400 from the \$10,000 S. & E. fund received from Washington to make up the deficit in the \$1,900 requested in their survey report.

A new beetle to the Region has made its appearance on this Forest in the highly valuable maple stands in the canyons adjacent to Salt Lake City. The maple constitutes the principal cover of the intensely used recreational areas and at present it is in danger of complete loss. The

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beetle is a flat-head borer (Agrilus politus) which presents an especially difficult problem of control due to the widespread nature of its attack and the difficulty of locating the new attacks. Over 10,000 infested maples were burned during the early summer before emergence took place but the re-infestation from surrounding untreated areas was so prevalent that no appreciable good was done by the project. An attempt was made at control by the use of a penetrating oil sprayed on the exposed egg clusters oviposited on the surface of the bark of the maples. The long period of flight and oviposition and short period of incubation coupled with the difficulty of having the work carried on at the proper time due to the slow release of ERA labor did not bring very favorable results. Two representatives of the Bureau of Entomology have examined the areas in an effort to guide our attacks of the problem along sound lines. Continuation of treatment is planned for this winter and next spring.

The Wasatch also plans on small control projects in several camp ground areas to retard the infestation of alpine fir beetle and fir engraver beetle.

Cache N. F.:

As you probably recall, this Forest had some difficulty in regards to a complete cleanup of the Fish Haven unit during the 1954 fall project and your letter of February 5, 1955 recommended that the area be treated this spring. This was done but only 47 infested trees were found.

During the year 405 Douglas fir trees infested with the Douglas fir beetle have been treated as also were some 540 infested Douglas fir stumps left on timber sale areas. This Forest is experimenting with the "trap tree" method of control of this beetle. Traps were made by cutting from three to six overmature defective Douglas fir trees and pulling the logs into rollways. This fall the logs in these rollways were heavily infested with the Douglas fir beetle. The bark was peeled and burned.

A complete survey was made of all lodgepole pine and limber pine areas on the Cache Forest this fall. The report of this survey has not as yet been submitted to this office. A short memorandum just received stated that 145 limber pine and 53 lodgepole pine infested with the mountain pine beetle had been discovered and treated this fall in the Franklin Basin unit. The survey showed another increase in the Fish Haven and Beaver units near Bear Lake. This strikes us as being very unusual inasmuch as these areas have recently been treated. The Supervisor is at a loss to account for the origin of the reinfestation. It is barely possible that the beetles have come from the Caribou, a distance of 15 or 20 miles to the northeast. Should the survey show these two units in need of treatment it can be handled by a CCC camp stationed nearby.

Chief, F.S.

Dixie N. F.:

The Black Hills beetle (B. ponderosae) working in conjunction with the southwestern pine beetle (B. barberi) has just started into an epidemic stage on a small area between Mammoth Creek and Blue Springs valley on the Sevier Division. The Black Hills beetle attacks the upper portion of the tree and the southwestern pine beetle the lower eight or ten feet.

Control operations were started by CCC labor but soon terminated due to the removal of the camp to winter quarters. Some of the trees can be disposed of by sales and burning of slabs. At present a spotting crew is covering the infested area with a 100% cruise in order to have all necessary information available for treatment in the spring. The report from this survey has not been received but it is understood that around \$2,000 will be necessary for a control operation. As it is very doubtful that CCC labor will be available in time to treat the area early in the spring we plan to allot part of the \$10,000 S. & E. recently received from your office. Two thousand dollars should do the job.

Minidoka N. F.:

A survey was made of the Cassia Division of this Forest this fall. A total of 13,394 lodgepole pine trees infested with the mountain pine beetle is estimated on the 10,002 acres of host material on the division. The timber on this area has a very high value due to the dependence placed on it for use in the surrounding intensely used farming areas. Also this division of the Minidoka is completely isolated from any other area of host material for the mountain pine beetle. A complete control job here certainly should save this valuable lodgepole pine stand.

A total of \$15,000 is estimated as necessary for complete treatment this fall and next spring. The Minidoka can finance \$3,000 through RRA and CCC labor and with regular ECF monthly allotments. An allotment of \$2,000 ECF has been made this Forest from the Regional Office contingent. We plan on allotting \$5,000 of the \$10,000 allotted from your office to complete the \$7,000 funds necessary to bring the total to \$15,000. This project is being carried on at present and will continue until winter snows make treatment prohibitive. Control will be continued to completion in the spring.

Wyoming N. F.:

This Forest carried on a control project with CCC labor during the spring of 1935 on the Green River slope of the Forest. A total of 3,642

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lodgepole pine trees were treated for the mountain pine beetle. The operation consisted of the treatment of "hot spots" over the whole Green River drainage of the Wyoming Forest, the largest numbers of trees being 2,174 new attacks on Halfmoon Mountain on the Bridger Division.

Two insect survey parties operated on the Wyoming this fall. One party, financed by ECF covered the Greys River drainage to determine what was happening in this long finger of timber connecting the heavily infested Targhee and the nearly endemic stands in the Green River drainage. An increase from 4,336 new attacks in 1934 to 9,003 new attacks in 1935 was found with an alarming concentration of infestation in the very head of Greys River and immediately adjacent to the Green River drainage. This area was thoroughly treated in the fall of 1933 and we are reasonably sure that the reinfestation came from the limber pine and white bark pine surrounding the rim of this portion of Greys River. Considering that the last control work on Greys River was during the fall of 1933 and that at that time only a small portion of the river received treatment, it is surprising that we have not found a far greater number of new attacks in the drainage.

All of the lodgepole pine areas on the Green River slope were covered by another survey party. Again a scattering of "hot spots" was discovered necessitating treatment of approximately 3,100 trees, 500 of which are off the Forest.

Although the Bureau of Entomology was unable to recommend treatment on the Green River side a decision was finally reached in this office to continue operations due to the following reasons:

1. A going tie operation in the area is cutting approximately 300,000 ties annually resulting in an approximate gross income from stumpage to the Government of \$25,000. Control work is needed to protect this operation and retard the time of what may be eventual loss of the best material so that the mature tie timber can be marketed.
2. Treating operations have proven very successful in each case within the area.
3. All of the project can be handled locally by CCC and ERA.
4. There is always the possibility that a natural control will be established and that artificial control may stave off the epidemic until this occurs.

Chief, F. S.

5. The main body of the great infestation is still a considerable distance to the north. High mountain ranges (the Continental Divide on the northeast) give some protection to the area from infestation from other sources.

6. Saving the timber from destruction may mean the saving of great expenditures in the future to suppress costly fires.

7. The cessation of the cutting activities would be a serious blow to the local community.

Surrounding the rim of Greys River is a limber pine and white bark pine type that bears a relatively heavy infestation of the mountain pine beetle. The present plan calls for treatment of the infested trees in this area in the spring with ERA crews. This type located advantageously for dissemination of insect broods, has never received treatment and has undoubtedly been the cause for much of the reinfestation in adjacent areas. It may be that this belt of timber will prove to be a trap area for any migrating beetles and will play an important part in our efforts to save the Green River lodgepole pine. At any rate we feel that this type should receive treatment this coming spring. It might even be advisable to treat the head of Greys River to act as an isolation strip for the Green River drainage.

A small spot of spruce budworm infestation has been found in the Greys River area but no treatment is recommended at this time.

RECOMMENDATIONS

It is recommended:

1. That control work on the Ashley, Uinta, Wasatch, Cache, Minidoka, and Dixie Forests be continued to a complete cleanup. We already have sufficient funds on hand to do this.

2. That control work on the Green River side of the Wyoming Forest be continued to include all "hot spots" of infestation shown in the fall 1935 survey and that the limber pine and white bark pine areas on the rim of Greys River be also treated in the spring of 1936, work to be done with CCC and ERA labor and funds.

3. That allotments be made to the Region next summer for a continuation of insect surveys on critical areas throughout the Region during September and October of 1936.

Chief, F. S.

Attached are a number of copies of insect control and insect survey reports for various Forests within the Region.

Very truly yours,

A. H. Rutledge

Encl.

Regional Forester.